

REMARKS

I. Introduction

Claims 1-3, 5-8, 11, 12, 16-22, 25-27, 29-35, and 37-48 were pending in the present application. Claims 5, 16, 21, 29, 37, 43, and 47 have been canceled. In an October 2, 2006, Office Action (herein "Office Action"), Claims 1-3, 8, 11, 12, 16, 25-27, 29, 32-35, 37, and 40 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,948,061, to Merriman et al. (herein "Merriman"). Claims 5-7, 17-22, 30, 31, 38, 39, and 41-48 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Merriman in view of U.S. Patent No. 5,937,392, to Alberts (herein "Alberts").

For the following reasons, applicants respectfully submit that Claims 1-3, 6-8, 11, 12, 17-20, 22, 25-27, 30-35, 38-42, 44-46, and 48 are not obvious by Merriman and Merriman in view of Alberts because Merriman and Alberts, either alone or in combination, fail to teach or suggest a rotation frequency based upon a sum of the number of display opportunities encountered and an estimated number of display opportunities to be encountered for any remaining time in the predetermined period of time. Prior to discussing more detailed reasons why applicants believe that all of the claims of the present application, as amended, are allowable over the cited references, a brief description of the present invention and the cited references is presented.

1. Summary of the Present Invention

The present invention is generally related to a system and method for dynamically managing the delivery of media, such as advertisement media. More particularly, the present application dynamically selects advertisement media to deliver by calculating a rotation frequency for several items of media. The rotation frequencies are used to calculate an

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advertisement priority score for each item of media. The priority score is used to select advertisement media to deliver.

In one example of the present invention, the rotation frequency may be defined in terms of the quotient between an impression goal and the number of advertisement media display opportunities (i.e., page views) encountered during an advertisement delivery campaign. The page views may be a predicted number or a sum of both a predicted number and actual page views that have occurred during the advertisement delivery campaign. For example, assume a media campaign has an impression goal of 1,000 impressions over a campaign of 28 days. At the beginning of the campaign, embodiments of the present invention may predict the number of page views for the days to be 1,125. Based on that prediction and the impression goal of 1,000, the rotation frequency may be calculated ($1000/1125 = 0.8888889$).

Using that rotation frequency, embodiments of the present invention utilize a dynamic array to manage the actual number of page views and adjust the predicted number based on the actual number to assure that the advertisement media is being delivered as desired. In particular, the dynamic array includes several array elements, each element representing a fixed period of time of the advertisement campaign. At the beginning of the advertisement campaign, each array element contains an estimated number of page views that are predicted to occur during that fixed period of time. As the campaign progresses, the estimates are replaced with the actual number of page views that occurred. Based on the sum of the actual page views and the number of page views estimated to be encountered, the rotation frequency is dynamically adjusted to compensate for the over/under estimation from portions of the campaign that have been completed.

If there was an underestimation (i.e., more actual page views have been encountered than estimated), the dynamic array is adjusted, the dynamic rotation frequency recalculated, and based on the lower rotation frequency, the priority of the media decreases. Decreasing the priority

allows other advertisements to obtain a higher priority score and be delivered as needed. Likewise, if there was an overestimation (i.e., fewer actual page views were encountered than estimated), the dynamic array is adjusted, the dynamic rotation frequency recalculated, and based on the higher rotation frequency, the priority of the advertisement media increases. Increasing the priority ensures that the media is delivered more frequently.

Numerous advantages may be realized by the system or method recited in the claims of the present application. In one aspect, advertisement media may be more effectively and efficiently delivered thereby increasing the likelihood that the impression goals for delivery campaigns are realized. In another aspect, dynamic adjustments in the delivery of advertisements provide the ability to compensate for fluctuations in the number of page views encountered. Additional advantages may also be realized within embodiments of the present invention.

2. U.S. Patent No. 5,948,061, to Merriman et al.

Merriman is purportedly directed toward a method and apparatus for targeting the delivery of advertisements over a network. In accordance with the teachings of Merriman, the method and apparatus attempts to target advertisements based on the user's preferences, how often the user has previously seen the advertisement, and how frequently the advertisement has been viewed. For advertisements that match the user's preferences and for which the user has seen less than a predetermined threshold, a satisfaction index ("SI") is calculated according to the following formula:

$$SI = \frac{n}{N} * \frac{end - start}{now - start}$$

Where:

n: the number of times the particular advertisement has been viewed by anyone;

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N: the number of times the advertisement is to be seen by anyone;
end-start: the total number of days that the advertisement is scheduled to run; and
now-start: the number of days that the advertisement has run to date.

The SI for matching advertisements is compared and the one with the smallest SI is selected.

Merriman fails to teach or suggest dynamically adjusting a rotation frequency based upon a quotient defined by a numerator corresponding to a delivery goal and a denominator corresponding to a sum of a number of display opportunities encountered and an estimated number of display opportunities to be encountered.

3. U.S. Patent No. 5,937,392, to Alberts

Alberts is purportedly directed toward a banner advertising display system. In accordance with the teachings of Alberts, the system controls the frequency and distribution with which ads are served throughout the day. Each ad is associated with a counter (M) that has a default value. A counter value of zero indicates that the ad is to be served. A pointer cycles through the ads, decrementing each M counter as it goes, until it identifies an ad that has an M counter value of zero. Once an ad is served, its M counter value is reset to its default value. A second counter (D) is also maintained for each ad, and its value is changed each time the associated ad is served, thereby tracking the number of times the ad has been served. A third counter (A) is used to adjust the default value assigned to M when the counter is reset, thereby adjusting the frequency with which the ad will be served.

In addition to, and distinct from, maintaining counters to control the frequency and distribution of serves, Alberts also teaches that the number of hits for a particular service through which ads are served may be predicted based on the past history of that service. By predicting the number of hits to a particular service, the system of Alberts can adjust how often ads are

served or what type of ads are served (e.g., paid, free, trial), to that service in response to hits. Additionally, Alberts discusses breaking up the hours in a day based upon frequency of hits to a service to alter the granularity with which hits are monitored.

In particular, Alberts describes that predicting hits is used to accommodate the situation in which the number of hits per day for a service is undersold compared to the estimated and/or actual number of hits. "For example, if a system is typically receiving 500,000 hits per day and only 250,000 hits per day have been sold, the system can insert banners for charitable organizations, free serves on a trial basis, or public service announcements." (Alberts, col. 6, lines 27-35.)

Alberts fails to teach or suggest adding the number of opportunities encountered and the number of opportunities to be encountered for calculating a rotation frequency.

I. Prior Art Rejections

1. 35 U.S.C. § 103(a) Rejections

a. Independent Claim 1

Claim 1, as currently amended recites a method for calculating and dynamically adjusting a rotation frequency for media delivery. Claim 1 specifically recites:

1. In a computer, a computer implemented method for managing media delivery for a plurality of media, the method comprising:

calculating a dynamic rotation frequency for each of the plurality of media by the computer, wherein each dynamic rotation frequency is based upon a quotient defined by a numerator corresponding to a delivery goal for a corresponding one of the plurality of media and a denominator corresponding to an estimated number of display opportunities to be encountered during a predetermined period of time;

obtaining a request for media by the computer;

determining one or more of the plurality of media to deliver in response to the request by the computer, wherein the determination of the one or more of the plurality of media corresponds to the dynamic rotation frequency of the determined one or more of the plurality of media;

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outputting the one or more determined media by the computer; and
in response to outputting, dynamically adjusting the dynamic rotation frequency for the one or more output media by the computer, wherein the rotation frequency is dynamically adjusted as a function of the number of actual display opportunities encountered during the predetermined period of time, wherein the dynamically adjusted rotation frequency is based upon a quotient of the delivery goal and a sum of the number of display opportunities encountered and an estimated number of display opportunities to be encountered for a remaining time in the predetermined period of time.

Applicants respectfully submit that Merriman either alone or in view of Alberts fails to teach or suggest a rotation frequency dynamically calculated using a sum function, as set forth above. As recited in Claim 1 of the present invention, the rotation frequency is dynamically adjusted by adding the number of display opportunities encountered and the estimated number of display opportunities to be encountered. By using the sum function, both the number of display opportunities encountered and the number of display opportunities to be encountered are reflected in the rotation frequency equation. An additional advantage of using the sum function includes having the ability to take into account non-linear distributions of display opportunities.

In contrast to the sum function of the present invention as recited in Claim 1, Merriman teaches a rotation frequency defined in terms of a quotient between an impression goal (N) and the views seen so far (n) multiplied by a representation of remaining duration (end-start)/(now-start). (Merriman, col. 6, lines 35-36). Merriman does not contemplate using the sum function as recited in Claim 1 because the number of views encountered (n) is multiplied by the remaining duration ((end-start)/(now-start)) to calculate a rotation frequency. By using only the opportunities encountered in calculating the rotation frequency, the advantage of using both the opportunities encountered and the number of opportunities to be encountered is not shown. Further, Merriman's use of multiplication does not show the additional advantage of accounting

for non-linear distributions. Since the sum function is not utilized and the advantages are not available, Merriman fails to teach or suggest the present invention as recited in Claim 1.

The Office Action asserts that Merriman in view of Alberts teaches Claim 1, as amended, of the present invention. Specifically, the Office action states:

Merriman et al does not teach the use of estimated impressions for starting an ad campaign scheduling frequency. Alberts teaches a system that can predictively model the number of hits (ad opportunities) in various time regions. For example, the system can be used to predict that weekend page views are slower than during working hours of M-F 8A-5P. Alberts uses recurring patterns, historical statistics and current statistics to provide control of ad distribution/impressions[6:43-45, 66-67]. It would have been obvious to one of ordinary skill at the time of the invention to have used such historically-based predictions to initiate the system of Merriman et al so that the initial ad frequencies are given a balanced start (not too fast or too slow). Both Merriman et al and Alberts use current statistics to further dynamically change the distribution schedule. Merriman et al teaches the use of estimated ad opportunities left.

(Office Action, pages 4-5). Further, the Office Action states that:

The teachings of Alberts are taken to provide one or ordinary skill with motivation to break up the campaign duration of Merriman et al into time segments (i.e. array elements) and treat the predicted page views differently from each other, rather than using Merriman et al's more simple linear approach (where each time period is assumed to have equal page views).

(Office Action, pages 6-7). Applicants respectfully submit that combining Alberts with Merriman would change the principle operation of Merriman and therefore cannot establish prima facie obviousness. (MPEP § 2143.01). Merriman calculates display opportunities to be encountered by taking the number of views encountered (n) multiplied by the remaining duration ((end-start)/(now-start)). Because Merriman treats display opportunities to be encountered as a

function of display opportunities encountered, combining Alberts treatment of page views (i.e. display opportunities encountered and display opportunities to be encountered) differently would render Merriman unworkable. Therefore, the combination of Merriman and Alberts cannot establish *prima facie* obviousness.

Regardless, Merriman in view of Alberts also fails to teach or suggest dynamically calculating a rotation frequency based on the sum of the number of display opportunities encountered and the number of display opportunities to be encountered as recited in Claim 1 of the present application. Alberts teaches that the number of hits for a particular service through which ads are served may be predicted based on prior experience of that service. (Alberts, col. 6, lines 42-45, 57-59). Alberts discloses breaking up the hours in a day based upon frequency of hits to a service to alter the granularity with which hits are monitored. (Col. 6, lines 45-50). Another way to implement such distribution is to use statistics that are being provided from an ad server. (Col. 6, lines 57-60). The distribution can be based on past traffic data and used with current statistics collected from the ad servers. (Col. 6, line 66-Col. 7, line 2). Alberts is silent to the method for combining the number of display opportunities encountered and the number of display opportunities to be encountered. Further, any sum function used within Alberts would be inconsistent with the multiplication function used within Merriman. Therefore, the prior art fails to teach or suggest dynamically calculating a rotation frequency using a sum function.

Generally described, under 35 U.S.C. § 103(a), a *prima facie* case of obviousness can be established only if the cited references, alone or in combination, teach each and every element recited in the claim. *In re Bell*, 991 F.2d 781 (Fed. Cir. 1993). Merriman and Alberts, alone or in combination, fail to teach or suggest calculating a dynamic rotation frequency based upon a quotient defined by a numerator corresponding to a delivery goal and a denominator corresponding to a sum of a number of display opportunities encountered and an estimated

number of display opportunities to be encountered. For the above reason, applicants respectfully request withdrawal of the 35 U.S.C. § 103(a) rejection of Claim 1 and assert that Claim 1 is patentable under 35 U.S.C. § 103(a) over the combination of Merriman and/or Alberts.

b. Independent Claims 11, 19, 25, 33, 41, and 45

For purposes of this discussion, Claims 11, 19, 25, 33, 41, and 45 will be discussed together because the elements discussed herein are similar for each claim. In particular, Claim 11, as currently amended, recites, "wherein the dynamically adjusted rotation frequency is based upon a quotient of the delivery goal and a sum of the number of display opportunities encountered and an estimated number of display opportunities to be encountered for any remaining time in the predetermined period of time." Similarly, Claim 19, as currently amended, recites, "determining a dynamic rotation frequency based upon a quotient of the delivery goal and sum of dynamic array." Claim 25, as currently amended, recites, "wherein the dynamically adjusted rotation frequency is based upon a quotient of the delivery goal and a sum of the number of display opportunities encountered and an estimated number of display opportunities to be encountered for any remaining time in the predetermined period of time." Likewise, Claim 33, as currently amended, recites, "wherein the dynamically adjusted rotation frequency is based upon a quotient of the delivery goal and a sum of the number of display opportunities encountered and an estimated number of display opportunities to be encountered for any remaining time in the predetermined period of time." Claim 41, as currently amended, recites, "determining a dynamic rotational frequency based upon a quotient of the delivery goal and sum of the delivery array." Claim 45, as currently amended, recites, "determining a dynamic rotational frequency based upon a quotient of the delivery goal and sum of the dynamic array."

As Claims 11, 19, 25, 33, 41, and 45 recite similar elements as found in Claim 1, particularly summing display opportunities encountered and to be encountered, the rationale as

to why applicants believe Claim 1 is in condition for allowance is applicable to these claims. Accordingly applicants request that the 35 U.S.C. § 103(a) rejections be withdrawn and the claims allowed.

c. Dependent Claims 2, 3, and 6-8

Claims 2, 3, and 6-8 are dependent on Claim 1. As discussed above, Merriman alone or in view of Alberts fails to teach or suggest all of the limitations recited with regard to Claim 1. Accordingly, for at least the reasons mentioned above in regards to Claim 1, dependent Claims 2, 3, and 6-8 are allowable over the cited and applied references, alone or in combination. In addition, Claims 2, 3, and 6-8 further add to the patentability and nonobviousness of applicants' invention. For these reasons, applicants respectfully request a withdrawal of the 35 U.S.C. § 103(a) rejections of Claims 2, 3, and 6-8.

d. Dependent Claims 12, 17, and 18

Claims 12, 17, and 18 are dependent on Claim 11. As discussed above, Merriman alone or in view of Alberts fails to teach or suggest all of the limitations recited with regard to Claim 11. Accordingly, for at least the reasons mentioned above in regards to Claim 11, dependent Claims 12, 17, and 18 are allowable over the cited and applied references, alone or in combination. In addition, Claims 12, 17, and 18 further add to the patentability and nonobviousness of applicants' invention. For these reasons, applicants respectfully request a withdrawal of the 35 U.S.C. § 103(a) rejections of Claims 12, 17, and 18.

e. Dependent Claims 20 and 22

Claims 20 and 22 are dependent on Claim 19. As discussed above, Merriman alone or in view of Alberts fails to teach or suggest all of the limitations recited with regard to Claim 19. Accordingly, for at least the reasons mentioned above in regards to Claim 19, dependent Claims 20 and 22 are allowable over the cited and applied references, alone or in combination.

In addition, Claims 20 and 22 further add to the patentability and nonobviousness of applicants' invention. For these reasons, applicants respectfully request a withdrawal of the 35 U.S.C. § 103(a) rejections of Claims 20 and 22.

f. Dependent Claims 26, 27, and 30-32

Claims 26, 27, and 30-32 are dependent on Claim 25. As discussed above, Merriman alone or in view of Alberts fails to teach or suggest all of the limitations recited with regard to Claim 25. Accordingly, for at least the reasons mentioned above in regards to Claim 25, dependent Claims 26, 27, and 30-32 are allowable over the cited and applied references, alone or in combination. In addition, Claims 26, 27, and 30-32 further add to the patentability and nonobviousness of applicants' invention. For these reasons, applicants respectfully request a withdrawal of the 35 U.S.C. § 103(a) rejections of Claims 26, 27, and 30-32.

g. Dependent Claims 34, 35, and 38-40

Claims 34, 35, and 38-40 are dependent on Claim 33. As discussed above, Merriman alone or in view of Alberts fails to teach or suggest all of the limitations recited with regard to Claim 33. Accordingly, for at least the reasons mentioned above in regards to Claim 33, dependent Claims 34, 35, and 38-40 are allowable over the cited and applied references, alone or in combination. In addition, Claims 34, 35, and 38-40 further add to the patentability and nonobviousness of applicants' invention. For these reasons, applicants respectfully request a withdrawal of the 35 U.S.C. § 103(a) rejections of Claims 34, 35, and 38-40.

h. Dependent Claims 42 and 44

Claims 42 and 44 are dependent on Claim 41. As discussed above, Merriman alone or in view of Alberts fails to teach or suggest all of the limitations recited with regard to Claim 41. Accordingly, for at least the reasons mentioned above in regards to Claim 41, dependent Claims 42 and 44 are allowable over the cited and applied references, alone or in combination.

In addition, Claims 42 and 44 further add to the patentability and nonobviousness of applicants' invention. For these reasons, applicants respectfully request a withdrawal of the 35 U.S.C. § 103(a) rejections of Claims 42 and 44.

i. Dependent Claims 46 and 48

Claims 46 and 48 are dependent on Claim 45. As discussed above, Merriman alone or in view of Alberts fails to teach or suggest all of the limitations recited with regard to Claim 45. Accordingly, for at least the reasons mentioned above in regards to Claim 45, dependent Claims 46 and 48 are allowable over the cited and applied references, alone or in combination. In addition, Claims 46 and 48 further add to the patentability and nonobviousness of applicants' invention. For these reasons, applicants respectfully request a withdrawal of the 35 U.S.C. § 103(a) rejections of Claims 46 and 48.

CONCLUSION

Based on the above-referenced arguments and amendments, applicants respectfully submit that all pending claims of the present application are patentable and allowable over the cited and applied references. Because the cited and applied references fail to teach or suggest calculating a dynamic rotation frequency that is based upon a quotient defined by a numerator corresponding to a delivery goal and a denominator corresponding to the sum of display opportunities encountered and display opportunities to be encountered, applicants respectfully request withdrawal of the rejections of the claims and allowance of the present application.

If any questions remain, applicants request that the Examiner contact the undersigned at the telephone number listed below.

Respectfully submitted,

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